MARINE REVIEW.

VOL. IV. CLEVELAND, OHIO, THURSDAY, OCTOBER 29. 1891. No. 18.

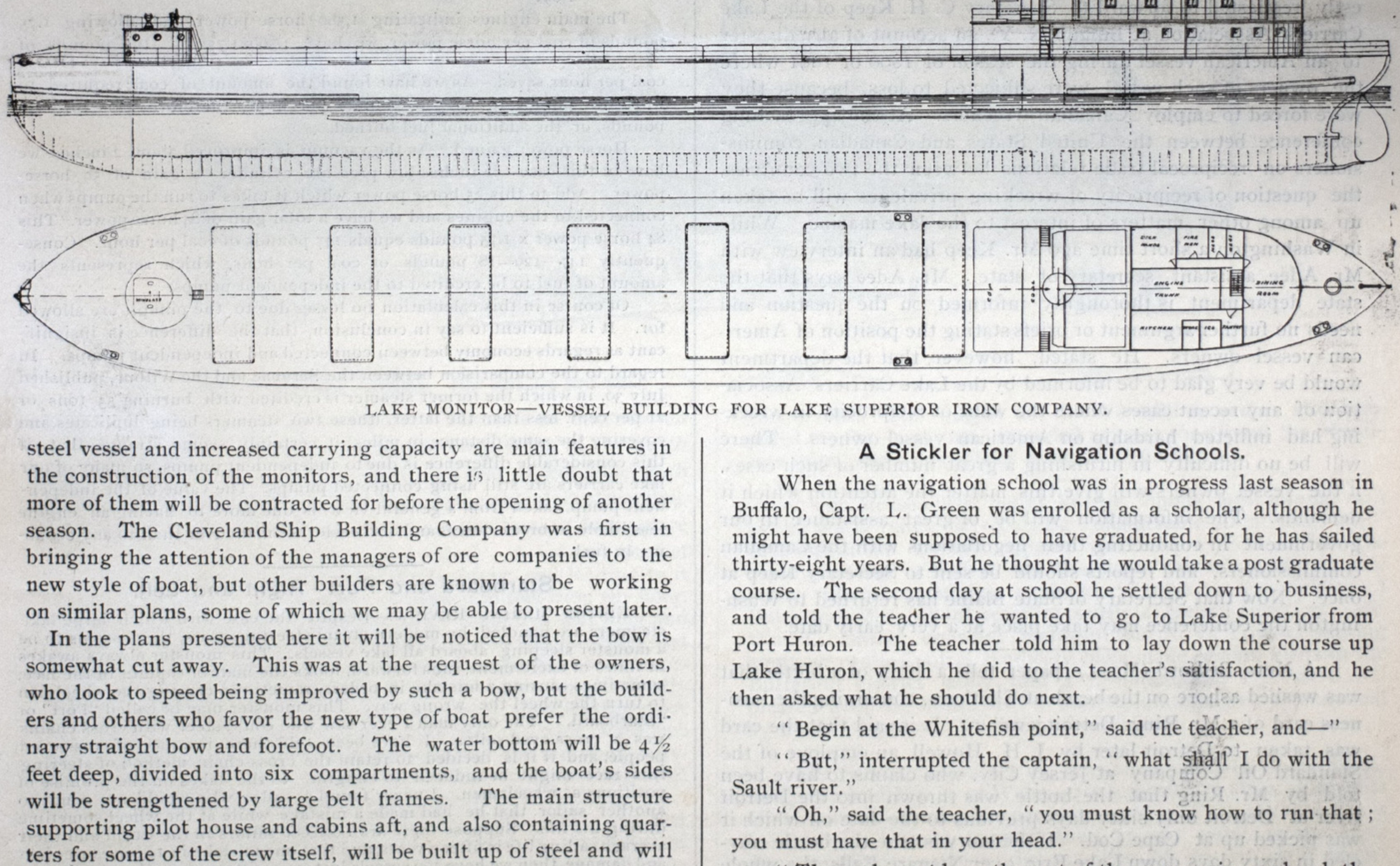
Lake Monitors.

In the contracts let a few days ago to the Cleveland Ship Building Company, by Mr. J. S. Fay, Jr., of the Lake Superior Iron Company, for two steel boats styled lake monitors, another wide departure from the ordinary lake freight carrier is recorded, and the REVIEW presents in the accompanying engravings the main features of the plans for the new boats. In brief it may be said that the monitor, as introduced by the Cleveland company, will have an upper or outside deck with rounded sides and no lower deck, and will have but one bulkhead, the collision bulkhead forward. The familiar pilot house and quarters for officers forward, as well as the turtle-back now common to lake steamers, will all be dispensed with, and in their stead a simple turret will be built for the windlass and for steering purposes in the rivers or during fine weather.

A reduction in cost as compared with the present type of steel vessel and increased carrying capacity are main features in the construction of the monitors, and there is little doubt that more of them will be contracted for before the opening of another season. The Cleveland Ship Building Company was first in bringing the attention of the managers of ore companies to the new style of boat, but other builders are known to be working on similar plans, some of which we may be able to present later.

In the plans presented here it will be noticed that the bow is somewhat cut away. This was at the request of the owners, who look to speed being improved by such a bow, but the builders and others who favor the new type of boat prefer the ordinary straight bow and forefoot. The water bottom will be 4½ feet deep, divided into six compartments, and the boat's sides will be strengthened by large belt frames. The main structure supporting pilot house and cabins aft, and also containing quarters for some of the crew itself, will be built up of steel and will have no doors, the windows being small, high up and well secured. The boat will be the same size as the Wawatam and Griffin of the Lake Superior Iron Company's fleet—266 feet long, 38 feet beam and 23 feet hold—but is expected to carry as much as the first two boats built for the company, the La Salle and Joliet, the lines of which are not as fine as those of the Wawatam and Griffin. The engines and boilers will also be duplicates of those in the Wawatam and Griffin. The cylinders are 17, 29 and 43x36 inches stroke and the boilers 11 feet 6 inches by 12 feet. It was not at first intended to give the boats masts but they will have two pole spars.

Capt. Alexander McDougall was in Cleveland on Monday and was asked what he thought of the tendency among builders to construct this class of boat for general freight carriers. "We have patents" he said, "covering a semi-cylindrical deck and spoon-shaped bow as well as a great many other features in the whaleback. We will allow these builders to go ahead and turn out such boats but we will proceed against them after the boats are built if there is the slightest indication of infringement on our rights."



LAKE MONITOR—VESSEL BUILDING FOR LAKE SUPERIOR IRON COMPANY.

A Stickler for Navigation Schools.

When the navigation school was in progress last season in Buffalo, Capt. L. Green was enrolled as a scholar, although he might have been supposed to have graduated, for he has sailed thirty-eight years. But he thought he would take a post graduate course. The second day at school he settled down to business, and told the teacher he wanted to go to Lake Superior from Port Huron. The teacher told him to lay down the course up Lake Huron, which he did to the teacher's satisfaction, and he then asked what he should do next.

"Begin at the Whitefish point," said the teacher, and—"

"But," interrupted the captain, "what shall I do with the Sault river."

"Oh," said the teacher, "you must know how to run that; you must have that in your head."

"Then why not have the rest of the courses in my head, the captain asked." The teacher got a little huffy at the captain for asking questions that were not in the book, and told him he guessed he was too old to learn, and might go home.

The Proposed Convention.

In a letter to the REVIEW, Mr. George M. Lane, secretary of the Detroit board of trade, who is in charge of correspondence regarding the proposed convention of lake interests for the furtherance of waterway improvements, says he will in a few days again call together the committees of the different Detroit commercial bodies who began preparations for the convention. From individuals Mr. Lane has quite a large number of letters, and they all favor the movement, but some of the commercial bodies in different lake cities have not responded so readily, and on this account it has been necessary to await the result of a second inquiry. Individually, and without any authority from the committees acting in the matter, Mr. Lane says he is in favor of Chicago as the place for such a meeting, providing representative men or interests there will heartily take up the subject and push it. It is probable that the managers of the line boats in Chicago will ask that the convention bc held in that city, but as yet they have not shown a very earnest interest in the movement.

"By way of an explanation which may be desirable," says Mr. Lane, "it might be well to add that about the same time we commenced to move in this matter, the chamber of commerce of Duluth initiated a similar movement, each commencing without the knowledge of the other, collecting opinions relative to the desirability of such a convention. As soon as this fact came to our knowledge, Mr. Thompson, the secretary of that association, and myself began a correspondence, and we are in perfect accord and harmony. Neither one is seeking to boom or push our own city, but simply to promote a great enterprise.

Promise of a Repeal of the Barbarous Wrecking Laws.

Vessel owners and masters in all parts of the lakes are earnestly requested to forward to Secretary C. H. Keep of the Lake Carriers' Association at Buffalo, N. Y., an account of any disaster to an American vessel during the season of 1890 or 1891 where the owners of such vessel were subjected to loss, because they were forced to employ Canadian wreckers. At the approaching conference between the United States and Canadian commissioners on reciprocal trade relations between the two countries, the question of reciprocity of wrecking privaleges will be taken up among other matters of interest to the lake marine. While in Washington a short time ago Mr. Keep had an interview with Mr. Adee, assistant secretary of state. Mr. Adee says that the state department is thoroughly informed on the question and needs no further argument or briefs stating the position of American vessel owners. He stated, however, that the department would be very glad to be informed by the Lake Carriers' Association of any recent cases where the want of reciprocity in wrecking had inflicted hardship on American vessel owners. There will be no difficulty in furnishing a great number of such cases, if the vessel owners will give this matter the attention which it demands. The information will be of great assistance to our government in conducting their negotiations with the Canadian commissioners, and reports should be sent to Secretary Keep at once. Now that Secretary of State Blaine has returned to Washington the conference may take place at a very early date.

A New Bedford (Mass.) paper tells a story of a bottle that was washed ashore on the beach at Chatham, containing the business card of a Mr. Ring, Detroit jeweler. It is said that the card was taken to Detroit later by J. H. Howell, an employe of the Standard Oil Company at Jersey City, who claims to have been told by Mr. Ring that the bottle was thrown into the Detroit river at Detroit only sixty days previous to the date on which it was picked up at Cape Cod. If the story is true the bottle traveled in sixty days down Lake Erie, over Niagara Falls, the whole length of Lake Ontario, down the St. Lawrence river, through the Gulf of St. Lawrence, into the Atlantic ocean and thence to Chatham, a distance of 2,500 miles.

Value of Independent Condensers.

EDITOR MARINE REVIEW:—As a continuation of the two articles published in the MARINE REVIEW July 30 and Aug. 13, on the subject of "Independent Air Pumps," the following data may be of interest:

The steamer in question is fitted with triple expansion engines, indicating 1,560 horse power, with 145 pounds pressure of steam, eighty-four revolutions per minute, and 25 inches vacuum.

Style of pumps:—The air pump as well as the feed, bilge and cooler pumps are all worked independent of the main engine, being of the direct, duplex, double-acting pattern.

Heater:—All pumps exhaust into a feed-water heater.

Horse power required to work the pumps:—

Air pump 17 and 22x15 inches, twenty revolutions per minnte, mean effective pressure in water cylinder 15 pounds, takes	17 horse power.
Two feed pumps	11 horse power.
One bilge and one cooler pump	4 horse power.
Total	32 horse power.

Coal required for working the pumps:—From indicator cards taken from the air pump, having a terminal pressure of 50 pounds absolute in the steam cylinders, we find the quantity of water used per hour equal to 1,420 pounds. Assuming 1 pound of coal to evaporate 8 pounds of water, we have $\frac{1,420}{8}=178$ pounds of coal per hour used by the air pump, or $\frac{178}{17}=$ about 10 pounds of coal per hour per horse power for the air pump. The other pumps being of the same construction as the air pump, used evidently the same amount per horse power, and therefor 32x10=320 pounds of coal per hour required to work the pumps.

Coal gained in using the heater:—Temperature of hotwell 135°, with ordinary connected pump. Temperature of feed water after having passed the heater 210°, relating to the independent pumps. Thus we have a gain of 75° or 75 units of heat per pound of water. To express this amount in percentage we proceed in the following way: Total heat required to generate one pound of steam at 160 pounds pressure absolute from water at 32°=1,194 units. Consequently 103 units less from water at 135° or = 1.091 units, and 178 units less from water at 210° or = 1,016 units. Therefore, $\frac{(1,091-1,016)\ 100}{1,091}=7$, or the gain in per cent. in using the heater.

The main engines indicating 1,560 horse power and allowing 1.75 pounds of coal per horse power, we have $1,560\times1.75\times\frac{7}{100}=191$ pounds of coal per hour saved. As we have found the amount of coal required to work the pumps to be 320 pounds per hour, therefore 320—191=129 pounds, or the additional fuel burned.

Horse power gained:—As the vacuum is improved about 2 inches, we have in this case—62 inches low pressure cylinder—a gain of 59 horsepower. Add to this 25 horse power which it takes to run the pumps when connected to the engines and we have a total gain of 84 horse power. This 84 horse power x 1.75 pounds equals 147 pounds of coal per hour. Consequently 147—129=18 pounds of coal per hour, which represents the amount of fuel to be credited to the independent pumps.

Of course in this calculation no losses due to the pumps are allowed for. It is sufficient to say in conclusion, that the difference is insignificant as regards economy between connected and independent pumps. In regard to the comparision between the Saranac and the Wilbur, published July 30, in which the former steamer is credited with burning 53 tons or 21 per cent. less than the latter, (these two steamers being duplicates and covering the same distance in miles) it certainly seems strange that, if this considerable difference is due to independent pumps, so many of our lake carriers are still using connected pumps. The value of the independent pump, taken from a general view, is due more to having an engine less liable to break-downs and also easier to maneuver than to any economy in fuel.

X.

Starboard and Port—Right and Left.

EDITOR MARINE REVIEW:—Despite the ease with which large lake steamers are handled by modern steam steering gears, there seems to be a monster sleeping aboard all lake vessels. This monster always awakes in times of excitement, runs forward, looks the mate or captain in the face, sometimes causing a mistake in orders, sometimes causing the wheelman to turn the wheel the wrong way. This monster may be called "Port" or "Starboard." The only man I ever saw who could steer with cross chains was a cross-eyed sailor. I have been told there is a race of cross-eyed people, and if it is decided to retain the cross-chain method of steering this race might be induced to emigrate to the lakes on the promise of positions as wheelsmen. I never found a sailor who would not admit to another sailor that he had made a mistake while at the wheel sometime during his life. Suppose there are 1,000,000 sailors in the world and their average sailing life is fifteen years, and that one mistake in 10,000 causes loss and damage, then we have 100 vessels lost every fifteen years that are chargeable to "Port" and "Starboard." Sailors are not supposed to be men of great minds, yet they are required to translate the meaning of the orders port and starboard from steering language to plain English under trying circumstances in many cases.

P. CAROLAN.

Iron Mining.

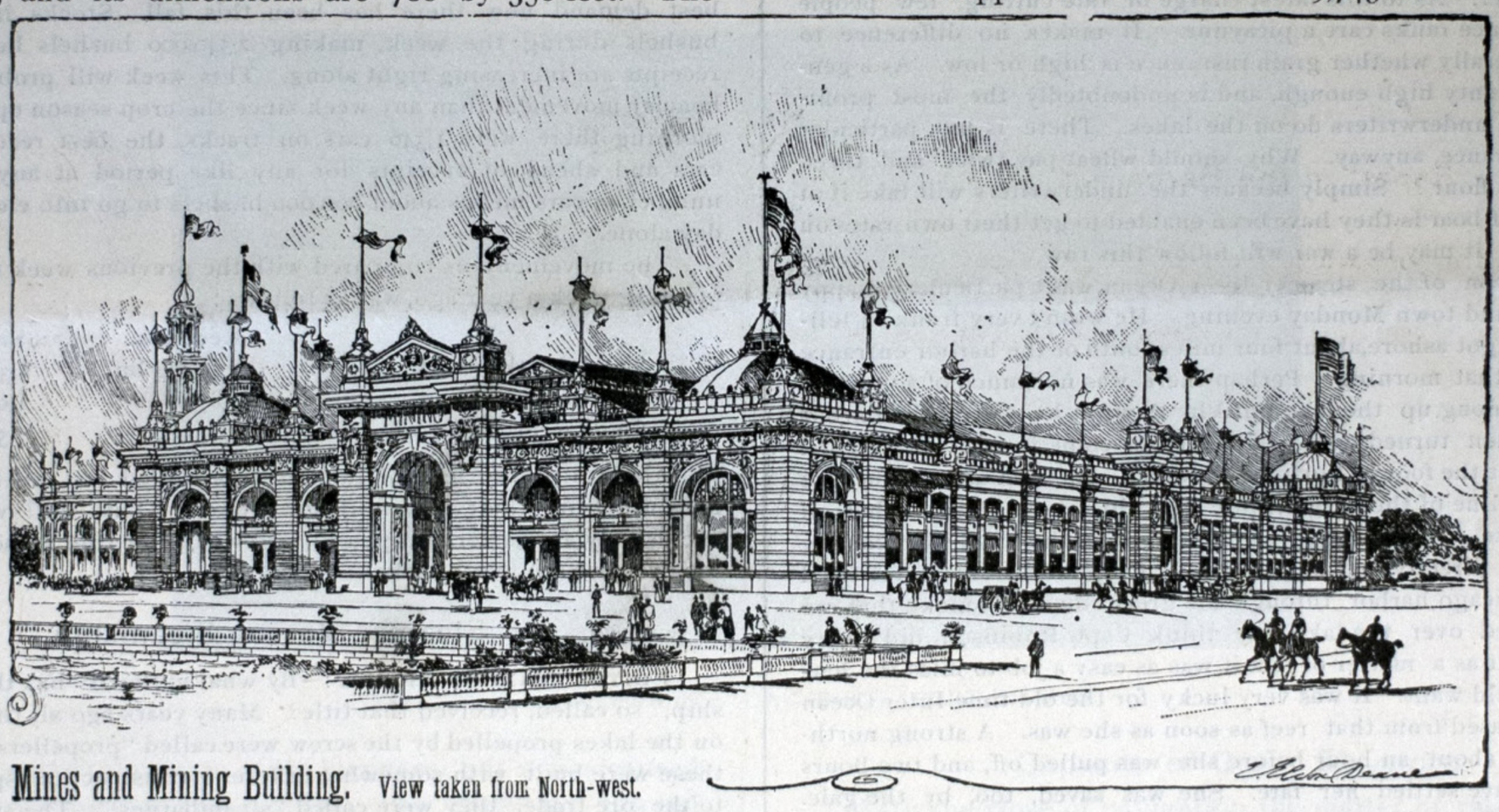
VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company.....	$100 00	$.....	$ 82 50
Champion Iron Company.....	25 00	.....	77 50
Chandler Iron Company.....	25 00	38 50	40 00
Chicago and Minnesota Ore Company.....	100 00	.....	100 00
Jackson Iron Company.....	25 00	.....	110 00
Lake Superior Iron Company.....	25 00	.....	.....
Minnesota Iron Company.....	100 00	80 00	83 00
Pittsburg Lake Angeline Iron Co.....	25 00	.....	.....
Republic Iron Company.....	25 00	25 00	27 00
Ashland	25 00	.....	.....
Section Thirty-three.....	25 00	.....	.....
Brotherton.....	25 00	2 00	2 50

HALL OF MINING, WORLD'S COLUMBIAN EXPOSITION.

Next to the transportation building, which will contain the marine exhibit at the World's Columbian Exposition, will be located the hall of mines and mining, the steel work of which will be constructed by the King Iron Bridge and Manufacturing Company of Cleveland. On account of the great mining interests of Lake Superior, the exhibit of this department will be of special interest to the lake marine with which it is so closely connected. The cantilever system as applied to the roofs has never been used on as large a scale as that planned for this great structure, which will cost $350,000. The style of architecture of the building is classic, and its dimensions are 700 by 350 feet. The



Mines and Mining Building. View taken from North-west.

height to the main cornice is 65 feet. There is an entrance on each side of the building, the grand entrances being at the north and south ends. These are 110 feet high and 32 feet wide, each opening into a vestibule, 88 feet high and elaborately decorated. At each corner of the building there is a pavilion, 68 feet square and 90 feet high, surmounted by a dome. A balcony 60 feet wide and 25 feet high, encircles the building, and leading to it are eight stairways. The roof is of glass, 100 feet from the floor.

The great interior space is one story high, 630 feet long and 230 feet wide, with an extreme height of 100 feet at center and 47 feet at sides, and is spanned by steel cantilever roof trusses supported on steel columns placed 65 feet apart longitudinally and 115 feet and 57 feet 6 inches transversely, thus leaving clear space in center of building 630 feet long and 115 wide, with two side divisions, each 57 feet 6 inches wide and 630 feet long, leaving the central space encumbered with only 16 supporting steel posts. The cantilevers are of pin connection to facilitate erection. The inner and higher ends of the cantilevers are 46 feet apart and the space between them is spanned by riveted steel trusses with an elliptical chord. These trusses are designed so as to form a clear story 12 feet high, with vertical sash extending the entire length of central space—630 feet; this space terminating at each end with a great glass gable setting back 60 feet from front ends of the building. The wide spacings of the cantilever necessitated an extensive system of longitudinal perlines of the riveted lattice type.

With no announcement of dividends and little in the iron market to attract attention, the trade in mining shares is very dull. We hear of one sale of 100 shares of Chandler at $39. The price is low and is one result of shareholders getting tired of waiting for a dividend from a company that has paid nothing in a full year, although its business is supposed to be in excellent condition and it is expected that there is at least $15 a share in the treasury. The call for the meeting of stockholders of the Lake Superior Company on Dec. 23 says that the directors deem it for the best interest of the company to organize their terminal track, equipment, rights of way and buildings into a separate organization to be owned by the Lake Superior Iron Company, and to purchase any additional equipment necessary. Also to open the section 21 and control dock space at Lake Erie ports to handle the company's ores as expeditiously and economically as possible. The shareholders will vote on a new issue of stock at par to furnish funds for the building of the two new boats under contract and for these additional undertakings.

Shipments of the Gogebic range mines from Ashland on Oct. 21 (these mines are also shipping from Escanaba and by rail) were as follows: Ashland 229,755 tons, Aurora 77,269, Tilden, No. 2, 5,221, Tilden 23,194, Montreal, south vein 55,054, Palms 30,687, Section 33, Bessemer, 36,738, Carey 87,040, Trezona 15,759, Germania 22,382, Iron Belt 1,506, Mount Hope 91,701, Norrie 237,896, East Norrie 104,270, Comet 8,050, Federal 929, Eureka 12,752, Pabst 83,061, Ruby 913, Sunday Lake 52,225, total 1,164,694 tons. On the same date the Ludington mine had shipped from Gladstone 119,743 tons and the Hamilton 50,585 tons. The output of the Vermillion range, also computed to the 21st inst., included 454,043 tons from the Minnesota mine, and 332,555 tons from the Chandler.

"The Messembria, better known among local mining men as the South range, is receiving considerable attention of late," says one of the Ashland papers, "and the prospects are that the coming season will find the Wisconsin Central syndicate and many others conducting exploratory work in the vicinity of Butternut, Wis., about 20 miles south of Mellen Junction. Mr. Wm. C. Butler, assistant manager, and N. O. Lawton, mining engineer of the Central syndicate, have made several visits to the Butternut district lately, and it is understood they were well pleased with the indications at the explorations being conducted by the Michigan and Washtena companies."

The Schlesinger mines at Negaunee—Buffalo, South Buffalo, Queen and Prince of Wales—are expected to show shipments of 500,000 tons during the present season. Work at these mines has probably been more active than at any point in the Lake Superior district, and still the quantity of ore in sight seems greater than at the beginning of the shipping season.

The East New York mine is a Marquette range property that has made a very good showing during the present season, its shipments of the first grade of ore footing up to the present time about 40,000 tons.

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 210 So. Water Street, CHICAGO, Ill., Oct. 29.

Lake grain freights were in the same uncertain state this week as they were last. There is a beautiful uncertainty about rates which all vessel agents do not fully appreciate. In fact, there is a great deal of curiosity among the vessel men on 'change as to what is done each day. The first advance, 2¼ cents, was in the nature of a surprise, but when rates went up another quarter on Monday, it was generally suspected that something of the kind would be done. It seems to me to be a hard time for vessel agents. Cargoes are badly scattered and just at the time when you are thanking your lucky stars that you have got a cargo without breaking the rate, some fellow tells you that he has got a quarter better. The only strength seems to be in the Duluth rate on wheat, which has been used as a lever on Chicago shippers to secure the advances noted. It takes a wise man to tell what the rest of the week is going to bring forth. Perhaps it is just as well to wait, and make the predictions afterward.

Nothing has been done as yet about inviting the waterways' convention to meet in Chicago some time next winter. It is not certain that the invitation will be extended. Several active marine men are planning trips next winter, which will take them out of the city during the convention, and on that account they do not feel like taking an active part toward getting it located here. A meeting will be held in a few days when the entire question will be canvassed and then the REVIEW can tell its readers what Chicago will do for the convention.

The Chicago board of marine underwriters can have more fun over the report that some member is cutting rates than most people have at a horse race. When insurance men get right down to business and begin hauling one another over the coals, the furniture in the board of trade rooms is in danger. As to this latest charge of rate cutting, few people not in the insurance ranks care a picayune. It makes no difference to marine men generally whether grain insurance is high or low. As a general thing it is plenty high enough, and is undoubtedly the most profitable business the underwriters do on the lakes. There is no particular logic in the insurance, anyway. Why should wheat pay twice and three times as much as flour? Simply because the underwriters will take it at that. By means of boards they have been enabled to get their own rates on grain until now. It may be a war will follow this row.

Capt. Robinson of the steamer Inter Ocean was't particularly happy when he got around town Monday evening. He wasn't very frank in telling how his boat got ashore, about four miles south of the harbor entrance about 1 o'clock that morning. Perhap there was not much of a story to tell. He sailed along up the lake until he thought he was off the harbor entrance. He then turned west and started to come inside. He fetched up on the reef at the foot of Forty-third street. As soon as he struck he let go of the tow line of the barge Annie Vought, which cared for herself and did not strike. It was foggy at the time, and the wind was blowing the city's smoke directly out on the lake. People who have never tried getting into Chicago harbor through the great clouds of smoke that are sometimes wafted over the lake may think Capt. Robinson did a very foolish thing, but as a matter of fact it was as easy a job to miss the harbor as a man would want. It was very lucky for the old-time Inter Ocean that she was released from that reef as soon as she was. A strong northwest gale set in about an hour before she was pulled off, and two hours longer would have settled her fate. She was saved, too, by the gale. The water rose a foot before the wind really began to howl, and that made a release much easier.

One hears a good deal of complaint nowadays about what the vesselmen term the exoribitant demands of labor unions. It is said that after a vessel pays all these demands there is very little left on the freight of a cargo of lumber. This year it is certain that the laboring man with only his time at stake has made more than the vessel owner who had $10,000 invested in a small lumber schooner.

Subscriptions are now being taken here for a special marine exhibit for the World's Fair. Capt. Walsh is against a marine exhibit. He says Chicago never did anything for the marine, ergo, the marine should do nothing for Chicago.

Canadian Marine.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Oct. 29.—Quite a discussion is now going on between the government and forwarders regarding the safety of navigation of the channel in Galop's rapids. The latter have asked that a test be made with a tow of old barges filled with water. Until such a test is made the underwriters will not assume responsibility for accident. Suppose a tow of grain laden boats were sent down and an accident occurred, it is impossible to say who would be liable, the forwarders who ran an unusual risk or the insurance companies. John Gaskin, outside manager for the Montreal Transit Company, has published a letter asking for the above test and that the channel be accurately buoyed out.

Thus far this season only 25,000 bushels of Canadian barley have reached Oswego. This is an unusually small quantity.

Capt. Towers of the propeller Ocean has called attention to very shallow water between Telegraph and Nigger islands. If, as is proposed, larger steamers are put on next season the channel in the Bay of Quinte will have to be improved.

While the J. G. Worts was evading the shoal opposite the dry dock, she ran into the small schooner Minnie Ann and struck her stern hard. While the latter was uninjured, the Worts smashed part of her rigging.

The steamer Admiral, about which there was so much talk in the recent government investigation, as being owned by Thos. McGrevy, M. P. and being engaged in government work, was a United States revenue cutter named the Chase in 1860. She carried General Grant to Hayti, many years after.

Chartering for grain through to Montreal is about done. Several vessels here lately were unable to obtain charters. It now looks as if a great quantity of the Canadian grain will have to go by way of the American ports. Probably most of the northwest grain will seek an outlet that way. The steamships at Montreal have all their space engaged ahead and shippers in the west are commencing to ship through the United States. Doubtless some of the steamships will run the risk of being frozen in by the ice this fall, as the ocean rates offering are very tempting.

The article in the REVIEW with regard to the method employed to deepen the harbor is expected to have the desired effect. It is probable that next year steam drills will be brought into requisition.

Northwestern Grain Again Moving.

Special Correspondence to the MARINE REEVIW.

DULUTH, Minn., Oct. 29.—The wheat situation has gradually been improving here the past week, at least so far as vessel matters are concerned. Rates have advanced to 4 cents for Buffalo tonnage, with probably the best demand now there has been this fall. Stocks increased 626,000 bushels during the week, making 2,540,000 bushels here Monday, and receipts are increasing right along. This week will probably see a much heavier movement than any week since the crop season opened. Monday morning there were 1,346 cars on tracks, the best record so far by 177 cars and ahead of receipts for any like period at any market. This number of cars means about 800,000 bushels to go into elevators for Monday alone.

The movement as compared with the previous week and the corresponding week a year ago, was as follows:

	Receipts.	Shipments.
Total for the week.....	2,115,444 bu.	1,374,943 bu.
Previous week.....	1,587,663 "	1,056,829 "
Same week last year.....	594,189 "	589,388 "

About 1,700,000 feet of lumber was loaded last week by Mitchell & McClure from their new mill for Toledo. This mill will saw almost exclusively for eastern shipment, and will, after this season, send 30,000,000 to 40,000,000 feet by lake.

Steamer Versus Steamship.

EDITOR MARINE REVIEW:—By what authority has the Lake "steamship," so called, received that title? Many years ago all the carrying craft on the lakes propelled by the screw were called "propellers." Later, when these were built with somewhat different construction, specially adapted to the ore trade, they were called "steambarges." The steambarge grew in size and excellence and the more dignified name of "steamer" came to be generally used. The generic names of "propeller" and "steamer" are correct designations. Still later when the large steel steamers came to be built, their builders, perhaps in their honor introduced the name of "steamship."

Now any name that will add dignity to the monstrous, staunch and fleet tonnage recently built, whether of steel or wood, would seem justified, providing it were correct in its application. But a ship without yards or sails would be a misnomer on the high seas of the world. These lake greyhounds have not yards, booms or sails—in many cases have not even spars worthy of the name. As they are not "ships" they cannot be "steamships." They are therefore "steamers" of the first class; swift, marvelous in strength, magnificient in appointment, and really need no new title imported from salt water to further dignify them.

Cleveland, Oct. 28, 1891. B. L. PENNINGTON.

Official Numbers and Tonnage.

The bureau of navigation, W. W. Bates commissioner, assigned official numbers to the following lake vessels during the week ending Oct. 24: Sail—Judge, Erie, 18.02 tons gross, 17.12 net, No. 76,991; George, Milwaukee, 9.96 tons gross, 9 47 net, No. 86,183. Unrigged—Maj. Gen. W. S. Hancock, Buffalo, 125.28 tons gross, 119.02 net, No. 51,222.

MICHIGAN READERS OF THE REVIEW SHOULD TELL THEIR FRIENDS THAT THEY CAN HAVE THE MARINE REVIEW AND DETROIT TRIBUNE (WEEKLY) ONE YEAR FOR $2.

Dunford & Alverson's Big Dock.

An engraving on this page shows the immense dry dock of Dunford & Alverson at Port Huron, now ready for service. In length and width on top this dock is even larger than the big dock of the Detroit Dry Dock Company, and it is certain that business in the rivers between Lake Huron and Lake Erie is now well supplied in the matter of docking accommodations. The dimensions of Dunford & Alverson's new dock are as follows:

Length	400 feet.
Width on top	95 "
Width on bottom	55 "
Width at gate	62 "
Depth of floor	20 "
Depth to sill	18 "
Depth on blocks	16 "

The dock has pits to ship center-boards and rudders, and is otherwise equipped with all modern appliances.

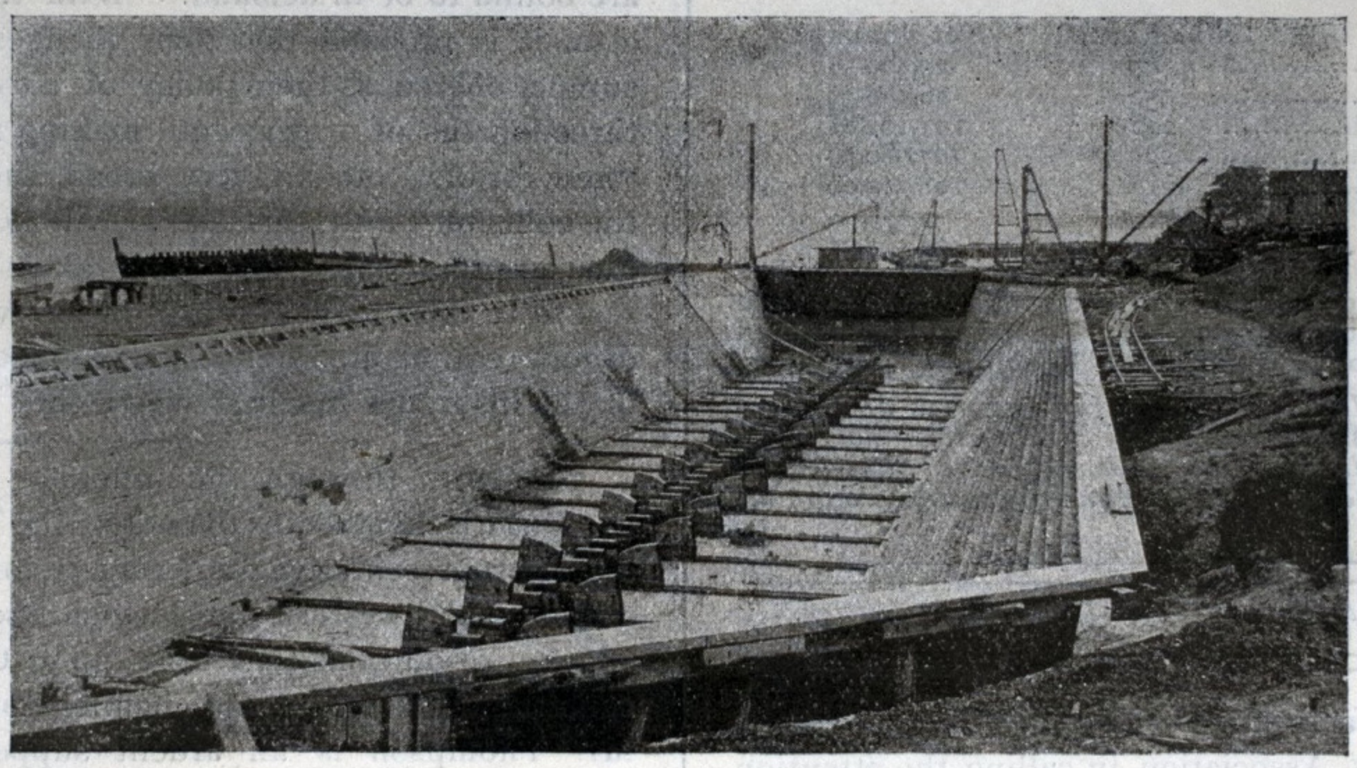
Lake Freight Situation.

Although there seems to be little in the iron market as yet to warrant such a proceeding, it is a fact that vessel owners have been asked in a few cases to name a rate of freight for next season on blocks of 100,000 to 120,000 tons of ore. This may be nothing more than an inquiry upon which some ore company intends to base certain features of its business, but it has caused some favorable comment in the market. Ore rates are quoted at $1.20 from Ashland, 95 cents from Marquette and 80 cents from Escanaba, and the tendency is toward an advance in these figures, on account of the urgent demand for vessels at Duluth to take wheat to Buffalo at 4 cents. Coal to Portage has paid 75 cents within the week and it is thought that the 50 cent rate to Milwaukee and Chicago will be advanced in accordance with the improved rates to Lake Michigan from Buffalo. Coal for the head of Lake Superior is still moving at 40 cents.

Chicago's Defiance in Canal Street Bridge Matter.

On Sept. 5 last the city of Chicago was served with an order from Washington to remove Canal street bridge. The history of this bridge obstruction and proceedings of the general government for its removal are matters well known to the vessel owners of the lakes, and the question involved is of the highest importance to navigation interests. The first month has elapsed without the city showing any disposition to obey the order of the secretary of war. The matter has been taken out of the hands of the city officials by the city council, and the latter has apparently dropped the whole subject. It is now in order that immediate steps be taken by the war department to collect the first month's fine of $5,000 from the city, and it is understood that the vessel interests of Chicago are now engaged in bringing this side of the question to the attention of the department. They are deserving of earnest support from vessel interests in all parts of the lakes. If the city of Chicago means to contest the validity of the last river and harbor act as far as it applies to government control of the Chicago river, by refusiug to pay the fine of $5,000 imposed by the act, then suit should be instituted without delay by the federal authorities, as it is understood that a fault in land condemnation proceedings connected with the construction of the bridge will compel the city to go into court and bring suits anew to condemn certain property. This means that the south draw of the bridge can not be opened during the coming season of navigation. Without regard to the result of this local difference, however, the fact remains that important questions regarding the encroachments of railway companies and corporations of all kinds on navigable streams in several parts of the lakes are dependent upon the subject at issue in Chicago, and the general government is looked for prompt action and a firm stand in this matter.

Complaint will also be made against the Fort Wayne railroad bridge as an unreasonable obstruction to the free navigation of Chicago river. The Lake Line Agents' Association has this matter in hand also.



DUNFORD & ALVERSON'S DRY DOCK, PORT HURON.

Capacity of Grain Elevators.

With the close of navigation the matter of rates for storage of grain in vessels wintering at Chicago and other grain shipping ports on the lakes will be of great importance, and on this account the following statement of the number of elevators and their capacity for some leading cities of the country will be of interest:

Name of City.	Number of stationary elevators.	Capacity in bushels.
New York	27	27,275,000
Chicago	26	28,675,000
Duluth and Superior	14	19,200,000
Minneapolis	16	13,290,000
St. Louis	12	11,950,000
Milwaukee	9	5,430,000
Detroit	4	2,900,000
Peoria	5	2,150,000

These figures are taken from the current issue of the Scientific American, which contains a lengthy article on the business of handling grain.

In carrying 3,239 gross or 3,628 net tons of ore from Escanaba to Buffalo the big steamer E. C. Pope, now owned by Eddy Bros. of Bay City, has again broken her own record of the largest cargo ever taken through the rivers, this time by eighteen tons. The Maryland's largest cargo from Escanaba to South Chicago was eighty-three gross tons in excess of that taken by the Pope to Buffalo. The Pope was unloaded at Buffalo in sixteen hours, actual working time.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, F. M. BARTON, ... } PROPRIETORS.

HOMER J. CARR, - - - Associate Editor and Manager Chicago Office, 210 South Water Street.

Published every Thursday at No. 510 Perry-Payne Building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,510 vessels, measuring 1,063,063.90 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The classification is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,527	652,922.25
Sailing vessels	1,272	328,655.96
Canal boats	657	67,574.90
Barges	54	13,910.09
Total	3,510	1,063,063.90

According to the report of William W. Bates, United States commissioner of navigation, 46 per cent. of the new tonnage of the country was built on the lakes during 1889. This is a percentage greater than the work of the Atlantic coast and western rivers combined, and almost equal to the whole work on the Atlantic and Pacific coast. In 1890 the tonnage built on the lakes is but very little less than that built on the Atlantic and Gulf coasts. Tonnage built on the lakes during the past five years was as follows:

	No. of boats.	Net Tonnage.
1886	85	20,400.54
1887	152	56,488.32
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
Total	902	393,597.03

Annual tonnage entries and clearances of the great seaports of the world, for 1889: New York, 11,051,236 tons; all seaports in the United States, 26,983,315 tons; Liverpool, 14,175,200 tons; London, 19,245,417 tons.

Tonnage passing through Detroit river during 234 days of navigation in 1889, amounted to **36,203,606** *tons. Ten million tons more than the entries and clearances of all the seaports in the United States, and three million tons more than the combined foreign and coastwise shipping of Liverpool and London.*

Entered at Cleveland Post Office as Second-class Mail Matter.

THE Canadian Manufacturer, commenting on the recent action of the Lake Carriers' Association in calling the attention of Secretary of State Blaine to the system of rebates in force on the Welland canal, declares that the Canadian people fail to see any discrimination in the system. "The facts show," says the Manufacturer, "that although rebates of toll are granted upon cargoes carried to Montreal in Canadian vessels, like rebates are also granted upon cargoes carried to that city in American vessels; and it is also shown that if American cargoes do not receive rebates not going to Montreal, Canadian cargoes fare no better under like circumstances." This would seem all right from the short-sighted view of the question taken in Canada, but it is certainly plain that these tolls and rebates discriminate against citizens of the United States and in favor of citizens of the Dominion, as they impose extra canal charges on cargoes bound to American ports. "This wise association should bear in mind," the Manufacturer adds, "that what it calls the St. Clair Flats canal is not entirely in American territory, and that Canada has as equal and full right in the navigation of that pass as the United States; for, as has been heretofore shown in these pages, this strait is supposed to be upon the international boundary line; some recent surveys going so far as to show that one end of it is entirely within Canadian territory." It may be supposed that the St. Clair canal is on the Canadian side, but the supposition is with Canada. There is no supposition here in the matter. Gen. O. M. Poe has repeatedly said that the St. Clair cut is in American waters and he knows what he is talking about. In the meantime such commercial organizations around the lakes as have not already petitioned the state department to demand at the coming reciprocity conference equal rights for American vessels, American citizens and American routes dependant on the Welland canal should do so at once.

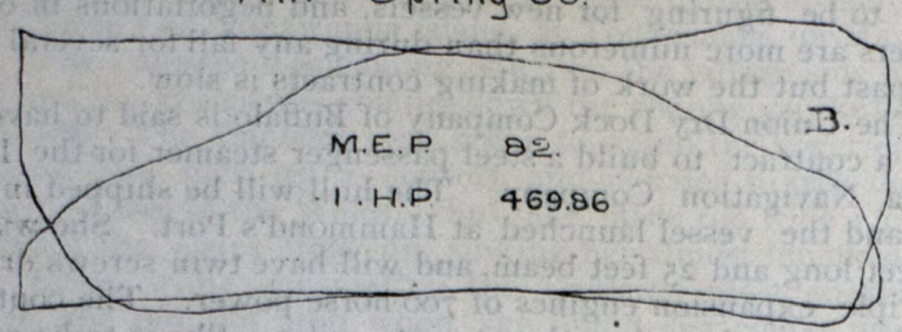
JUST as vessel owners are realizing that they have been putting too much money into iron ships for the service required of them, so also will the underwriters as well as the vessel owners find with the close of the present season that they have been paying too much attention to the general line of causes resulting in marine losses, and have not given the consideration necessary to collisions and strandings in the rivers. Stress of weather and the ordinary perils of navigation are no longer important factors in the lake business. Exclude the losses in the rivers between Lake Superior and Lake Erie during the past two seasons, and the damage to lake shipping otherwise—barring fire, of course—will be insignificant. The inference to be drawn, accordingly, is that the underwriters must adapt their business to these conditions. In doing so, some important changes in the system followed by home companies may be expected before the opening of the coming season, and the whole subject of insurance will be given attention by both owners and underwriters. The representives of foreign insurers have in several cases taken risks against collision and fire only, and special policies of this kind are bound to be in demand. With these foreign underwriters, also, it is probable that some changes will be found in the insurance offered, as their policy of covering collision liability at three-fourths of 1 per cent., making no deductions in replacing "new for old," etc. are very broad, and their settlements under the collision clause this season will not leave a very great margin on premiums. The stand taken by home companies with regard to these special causes of loss will, on account of the conditions enumerated here, have a great deal to do with the share of the insurance business which they will control next season.

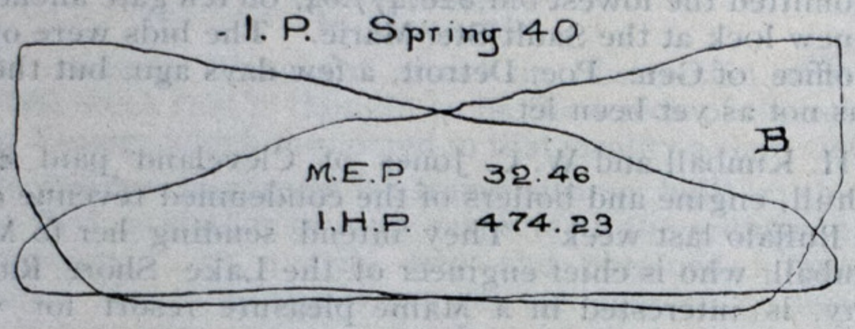
MAINLY through the influence of Secretary Thompson of the Duluth chamber of commerce, the Trans-Mississippi congress, a great representative gathering of commercial interests in western and northwestern states which assembled in Omaha last week, adopted resolutions that urge upon Congress the necessity of constructing a deep-water channel from the lakes to the seaboard. Mr. Thompson is an ardent supporter of the movement for a convention of lake interests during the coming fall or winter, that will take up this great subject in connection with a demand for the speedy completion of lake improvements now under way. Duluth, Detroit, Cleveland and other lake cities are willing to relinquish all claim to this convention, in order that the influence of western farming states may be secured to it. Chicago is looked to as an objective point for the convention, and it behooves the marine interests of that city to take immediate steps toward a settlement of the question of time and place for the gathering.

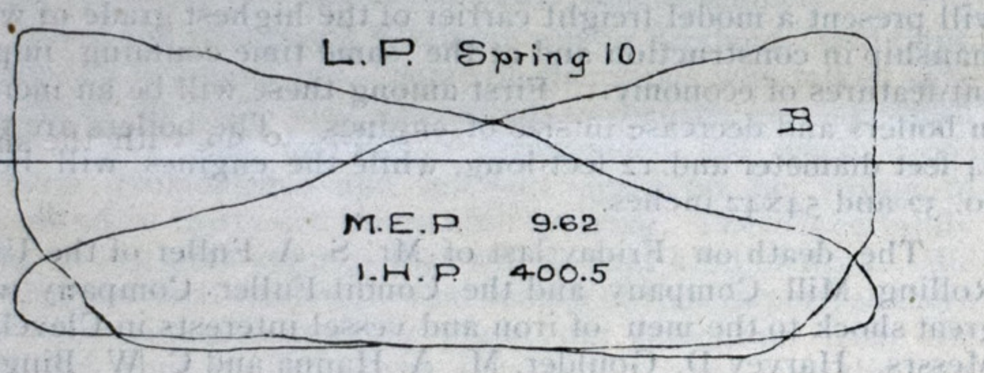
ANOTHER boat sunk at the Lime-Kilns' crossing within the past week should be sufficient to warn vessel owners that the scene of dredges digging a channel around the sunken steamer Susan E. Peck in the St. Mary's river a few days ago, with an immense loss to a delayed fleet of hundreds of big steamers, will be repeated many times over during the coming season, and possibly before the present one is at an end, unless rules are laid down for speed as well as the manner of meeting and passing in the rivers. Already some of the steamship companies, out of protection to their individual interests, are adopting extreme measures in this regard. The boats of the Northern Steamship Company do not run the rivers at all at night. They are handled in port so as to reach the rivers only by daylight. Some other companies have ordered a radical reduction of speed in these channels, but regulations of this kind are by no means general, as they should be.

Indicator Cards—Series 3.

(Steamer John Mitchell, Sept. 4, 1891.)







Steamer loaded, weather fine. Engines 20, 32 and 54x42 inches. Steam 160 pounds, vacuum 22 inches, revolutions 86. Built by Frontier Iron Works, Detroit, Mich.

Characteristics of the New Light-Ships.

Characteristics of the three light-ships now at their stations in the Straits of Mackinac are contained in notices just issued by the light-house board. No. 55 is on Simmons' reef, No. 56 on White shoal and No. 57 on Gray's reef. The vessels are alike in construction, having two masts, schooner rigged and no bowsprit. The masts are also alike in all cases, as they are painted yellow and abaft of each there is a trysail mast. In all three vessels two smoke stacks and the fog signal are between the masts. The focal plane of each group will also be the same in all cases, 30 feet above the lake, but the distinguishing features are as follows:

Simmons' reef—The vessel is in about 26 feet of water to the southward and eastward of the reef, and will show at each masthead a group of three fixed red lens-lantern lights that may be seen in clear weather about 8½ statute miles. The hull is painted red with "Simmons' reef" in large white letters on each side, and "No. 55" in white figures on the stern. The fog signal will sound a blast of one second followed by a silent interval of ten seconds, then a blast of three seconds followed by an interval of ten seconds and again a blast of one second followed by an interval of thirty-five seconds. Waugoshance light bears S. S. E. ¾ E. from this vessel, distant 9½ statute miles, and Hat island (left tangent) S. W. ½ S., distant 8 statute miles.

White shoal—This vessel is in 26 feet of water to the eastward and northward of the shoal, and will show at each masthead a group of three fixed white lens-lantern lights. They may be seen in clear weather from the deck of a vessel 10 feet above the lakes 11¼ statute miles. The hull is painted white with "White shoal" in large black letters on each side, and "No. 56" in black figures on the stern. The signals will be: Blast of one second, interval of ten seconds; blast of one second, interval of ten seconds; blast of three seconds, interval of thirty-five seconds. Waugoshance bears S. S. E. ¾ E., distant 4⅜ statute miles, and Hat island (left tangent) W. S. W. ¾ W., 8 statute miles.

Gray's reef—Vessel in about 26 feet of water, to the eastward of the reef, and will show a group of three fixed white lens-lantern lights at the foremast head, and three fixed red lens-lantern lights at the mainmast head. The white light may be seen in clear weather from the deck of a vessel 10 feet above the lake 11¼ statute miles. The hull is painted red up the bulwarks. The bulwarks are painted white with "Grays reef" in large black letters on each side, and "No. 57" in black figures on the stern. Fog signals: Blast of three seconds, interval of ten seconds; blast of one second, interval of ten seconds; blast of one second, interval of ten seconds. Waugoshance light-house E., 4⅝ statute miles, and Skilligallee light-house S. ½ E., 7½ statute miles.

Around the Lakes.

The Milwaukee Shipyard Company will extend its stationary dry dock to a length of 310 feet.

Capt. James Coleman, who sailed among other boats the schooners Kitchen and A. Mosher, died at Chicago a few days ago.

Capt. Alexander Donnelly of Detroit was instantly killed at Owen Sound last week by falling into the hold of his vessel, the Greyhound.

Baker Bros. of Detroit a few days ago released the Canadian schooner Gleniffer from the the beach at Minico, Ont. She had been ashore for nearly two years.

Such vessels as the steamer Keystone and schooner Potomac, the latter drawing less than 13 feet, found trouble in getting into Racine with coal. Dredging is badly needed in the entrance to the harbor.

Capt. James Reid of Armour-Pontiac wrecking fame will establish a wrecking business in Detroit next spring with offices at the foot of Randolph street. He has given up hope of releasing this winter the schooner Golden Fleece, ashore near Dunkirk, Lake Erie, but will resume work on her next spring.

George Graham, who has been mate on the steamer Brazil, was last week sworn in as master, because of the illness of Capt. Drake at Sault Ste Marie. Capt. William Pringle has taken charge of the steamer Saginaw Valley, vice Capt. Chatterton, resigned, and Fred. Watson has qualified as master of the barge S. Clement, vice F. W. Trent.

Thomas Johnson, J. S. Dunham's wrecking master, and Capt. Martin Howard of the wrecked schooner Wolf reported on returning to Chicago that the loss of the schooner was due to the fact that it took four days' time to get the pumps to her from Windsor by the Grand Trunk Railroad. Had the pumps arrived in time the schooner would undoubtedly have been saved.

Detroit owners of Canadian steam pumps have been notified that every time their pumps were taken out of Canada they would be obliged to pay 35 per cent. duty before they could return them. Heretofore the American owner had to pay this 35 per cent. once, and that made them eligible to storage in Canada. This move is in the interest of Canadian wrecking companies.

"If there was any way to get lake steamers back from the Atlantic next spring," says the Chicago Tribune, "there would be a great exodus of boats from the lakes this fall. In the Atlantic trade there is now the biggest boom for many years. Within a week the cost of carrying a bushel of corn from Boston or New York to Liverpool has jumped from 8 to 11 cents, and still there are not enough boats for all the stuff that America wants to send abroad. Tramp steamers, costing $150,000, are making $10,000 clear for the run of fourteen days across the Atlantic. Most of these steamers are not as good boats as the big steel carriers on the lakes. Unfortunately the completed locks on the St. Lawrence river canals are only 165 feet long, and if lake boats attempt to go to the Atlantic it must be by running the rapids on the St. Lawrence, which means that they can not be brought back in the spring without being cut in two.

In the form of an invitation to visit its works in Boston, the Mason Regulator Company sends out a card entitled "The Latch String is Always Out." It is a most novel and attractive gem in the study of advertising. The company will undoubtedly send one of the cards to any of the readers of the REVIEW who may ask for it.

Seeking Treasures From the Ill-Fated Pewabic.

Among the older vessel men, the sinking of the propeller Pewabic in collision with the propeller Meteor, off Thunder Bay island, Lake Huror, is not forgotten. The great loss of life—the number was never definitely ascertained—made it a memorable event in lake history. Two veterans in lake navigation and men widely known, Captains George P. McKay and Thomas Wilson, were masters of the boats, the former in the Pewabic and the latter in the Meteor. Captains George Cleveland and Byron Mills, two men still in active service, were the mates in charge when the collision occurred. Interest in the disaster is now revived through the efforts of C. A. Coon and others of Duluth to locate the sunken Pewabic and secure her cargo. Visionary stories have been told of the value of the cargo, one rumor saying the boat went down with $20,000 in gold aboard, but it is not probable that the Duluth parties have undertaken the work of raising the boat or portions of her cargo with any thought of fabulous wealth in store for them, as they are proceding in a sensible way. They are now at Alpena with the steamer Emerald, which they chartered from W. R. Durfee of Ashland, and have written Capt. McKay for information that will assist them in locating the wreck and also for a statement of the boat's cargo. The cargo consisted of 270 tons of copper, 175 tons of pig iron, 200 sheep skins, sixty- seven rolls of leather and other merchandise less valuable. The boat is in 128 feet of water and on this account it has been thought impossible to raise her, or even secure any portion of her cargo, but the wreckers now at Alpena claim to have diving appliances specially suited to work in deep water. It is said that they propose to use a sheet iron armor of some kind for the diver going into the water at such great depth, but they are not giving out much information regarding their plans.

Rapid Work in Handling Coal.

Dock companies engaged in the work of receiving and shipping coal on the lakes have put a very large amount of money into machinery for handling purposes during the past few years, and their plants now compare favorably with those in the ore business where the progress has been wonderful. One great aim with the coal companies now, however, is to replace the buckets now in use, the capacity of which is but a single ton, with 5-ton buckets. That 5-ton buckets will be used before long in the soft coal trade there is little doubt, but the advantage of increasing the size will not be very great until some method of filling them by dumping from the cars, instead of shoveling, is introduced. A 5-ton bucket can be handled by the hoists as readily as a bucket holding a single ton, but there is little if any gain of time and no reduction of expense in loading the bucket. Some of the manufacturers of hoists are now working on devices for dumping the coal from cars to buckets.

In the way of preparation for the construction of a 5-ton bucket of the Ludlow pattern, a test of the center from this bucket was made, a few days ago, at the works of the King Iron Bridge and Manufacturing Company. The center, or main bar in the bucket, withstood a pressure of 67,990 pounds, or about 34 tons.

Seeking to Benefit Lake Shipping.

The present hydrographic branch of the navy is a great service and renders valuable assistance to the shipping of the world. It was built up from an humble beginning by Dr. H. J. Penrod, an officer connected with the weather bureau, who collected returns from the captains entering the port of New York. Professor Harrington, chief of the weather bureau, shows that he is anxious to assist lake shipping in sending Dr. Penrod to the lakes. Through the different officers of the service in lake cities, Dr. Penrod will endeavor to interest lake captains in taking meteorological observations aboard their boats, and his study of the lakes and their needs in this line must result in benefit to shipping. Vessel masters will be asked to assist in this work next season.

Among the Shipbuilders.

The Lehigh Valley company and the Anchor Line of Buffalo as well as the Minnesota Steamship company, are still understood to be figuring for new vessels, and negotiations in other quarters are more numerous than during any fall for several seasons past but the work of making contracts is slow.

The Union Dry Dock Company of Buffalo is said to have secured a contract to build a steel passenger steamer for the Lake Kenka Navigation Company. The hull will be shipped in sections and the vessel launched at Hammond's Port. She will be 150 feet long and 25 feet beam, and will have twin screws driven by triple expansion engines of 700 horse power. The contract calls for a speed not less than twenty miles. She is to be ready by spring and will cost $40,000.

From West Bay City it is reported that Capt. James Davidson will build three large wooden schooners during the winter, to be added to the fleet of the Davidson Transportation Company.

Cleveland Matters.

The King Iron Bridge and Manufacturing Company of Cleveland submitted the lowest bid, $20,477.64, on ten gate anchorages for the new lock at the Sault Ste. Marie. The bids were opened at the office of Gen. Poe, Detroit, a few days ago, but the contract has not as yet been let.

G. H. Kimball and W. C. Jones of Cleveland paid $2,500 for the hull, engine and boilers of the condemned revenue cutter Bibb at Buffalo last week. They intend sending her to Maine. Mr. Kimball, who is chief engineer of the Lake Shore Railway Company, is interested in a Maine pleasure resort for which he had a small boat built at Ashtabula a short time ago.

In the boat to be built for Samuel Mitchell and associates in the Jackson Mining Company and Cleveland Rolling Mill Company, it is understood that the Globe Iron Works Company will present a model freight carrier of the highest grade of workmanship in construction and at the same time containg important features of economy. First among these will be an increase in boilers and decrease in size of engines. The boilers are to be 14 feet diameter and 12 feet long, while the engines will be but 20, 32 and 54x42 inches.

The death on Friday last of Mr. S. A. Fuller of the Union Rolling Mill Company and the Condit-Fuller Company was a great shock to the men of iron and vessel interests in Cleveland. Messrs. Harvey D. Goulder, M. A. Hanna and C. W. Bingham were members of the board of trade committee appointed to prepare resolutions on the death of Mr. Fuller, and the great esteem in which he was held is shown by the resolution. The board says of him: "Genial, kindly, lovable in disposition, faithful, and reliable in the discharge of every business engagement and duty, earnest and public-spirited, broad-minded and charitable, generous to a fault, beautiful in his home and family relations, trustful and confident of the truths of his religion and in the promises of God, we saw him in his daily life going in and out among us, helping, cheering and encouraging, and learned to respect and trust and love him in life; and now in death we mourn for him as a friend, as a business man, as a representative citizen, a man without blemish, a pure type of the true Christian gentleman."

Wrecks and Heavy Losses.

A lamp explosion caused the steamer Alpena to burn and sink on Lake St. Clair, Monday. She was owned by J.W. Westcott of Detroit and valued at $24,000.

The schooner City of Erie was wrecked near Leland, Mich. Tuesday. She was owned by J. McKay of Milwaukee, registered 209 tons and was valued at $1,000.

The Canadian propeller Sovereign, which foundered on Lake Superior Monday with a cargo of 18,000 bushels of wheat, was owned by the Northwestern Transportation Company and hailed from St. Catherines.

Notices to Mariners.

Commander Nicol Ludlow gives notice that the pier-head light at Kewaunee, Wis., has been removed out to the end of the pier, which has been extended 200 feet.

Owing to the formation of a bar outside of the north pier at St. Joseph Harbor, Lake Michigan, the fixed red tubular-lantern light exhibited from a post set at the outer end of that pier will be discontinued on Oct. 31.

Canisteo-Wales Collision.

Judge Coxe of the federal court, New York, has rendered a decision in the collision case of the propeller Canisteo and the tug Wales, in which the latter was sunk by the former, just below White's or Tonawanda island, at Tonawanda, on May 14, 1890. The Canisteo was coming down on the village side of the island and the Wales was coming down the channel on the Grand island side. The Canisteo was going to round the lower end of the island and pick up a consort, and signaled to pass on the port or east side of the Wales. But she made too wide a curve and struck the Wales stem on, sinking her almost immediately. Judge Coxe, while considering the Canisteo most to blame, because she did not stop when she found her course was not going to bring her short of the Wales, still thinks that had the Wales put her helm hard a starboard in good time the accident might have been avoided. Her owner saw the need of such a position and tried to prove that it was done,but the judge does not believe the testimony, for the boat was no farther to the westward of the channel when the collision occurred than when the Canisteo signaled her. He therefore decides that the Canisteo shall pay the Wales half the damages, which were about $8,000.

In General.

The steamer Blanchard struck an obstruction off Waugoshance last week that is thought to be the wreck of the schooner William Young, which foundered in that locality a short time ago.

The steamer Dordrecht is a tramp steamer built on the Tyne recently and is similar in some respects to the ordinary type of lake steamers. In a trial trip she obtained a speed of 9¾ knots. Her dimensions are 282 feet over all, 37 feet beam and 19 feet 8 inches depth. At the trial the cargo consisted of 2,800 tons of coal. The engines were built by the Northeastern Marine Engineering Company, the company that furnished the engines for the whaleback steamer Bartlett. The cylinders are 20½, 34, 56 by 39, and 980 horse power was developed.

"When the whaleback Wetmore was in England," said Capt. McDougall a few days ago, "some of the critics who talked very much about the boat also attempted to belittle her lake-built engines. The boat arrived at Montevideo last week, 7,000 miles from Philadelphia, and left port again on her voyage to Puget sound in thirty-six hours after arriving. There is certainly nothing wrong with engines that will do that kind of work. We know that the boat spent only that length of time in port, as there was a little misunderstanding about our cablegram from the master, and when we cabled the American consul later the boat had gone." The Wetmore's engines were built by S. F. Hodge & Co., of Detroit.

There is probably no steamboat company in this or any other country that can claim better management than that attending the affairs of the Goodrich company, operating on Lake Michigan. While it is true that President Goodrich is a very young men at at the head of such a large company, it is also true that he has had the benefit of a training in the transportation business from boyhood, and he has some excellent men around him. Mr. G. Hurson, secretary and traffic manager, has been with the company for thirty-five years, working up to his present position from cabin boy, and Gen. Mngr. John W. Gilman was a wheelman on one of the Goodrich boats twenty-five years ago. Chief Engineer Elliott and other trusted employes of the company have also seen many years of service in this line.

Nothing Small About Capt. Dunham's Project

EDITOR MARINE REVIEW:—Chicago is a great city. It has absorbed a large part of Illinois, got the World's Fair, recently asked Congress for five millions of dollars and now one of its citizens, Capt. J. S. Dunham, is reported as wanting to dam Niagara river below Tonawanda, with a view to backing up the waters of the rivers and lakes sufficiently to make Chicage river navigable for full loaded boats. There is nothing small about this project; no indeed. It is just like Chicago. But as the difference in the natural level of the water of the lakes and rivers at Chicago and Tonawanda is from 15 to 18 feet, the natives of Tonawanda would naturally object to a scheme which, in order to benefit Chicago a little, would place a large part of Tonawanda and surrounding country in the bottom of Capt. Dunham's remodeled Niagara river. JOHN MURDOCK.

Duluth, Minn., Oct. 26.

[In justice to Capt. Dunham it may be well to note in connection with this communication that, although a newspaper interview printed a short time ago would indicate that he contemplated increasing the water of all the lakes by a dam at Tonawanda, such was not the case. Capt. Dunham has given some study to this subject and he is, of course, aware of the difference in the lake levels.—ED.]

The Moniteur Industrielle recommends the use of a mixture of oil and graphite on all screws in machinery. It says it will effectually prevent them from becoming fixed, and protects them for years from rust; at the same time the mixture facilitates tightening up. The Joseph Dixon Crucible Company, Jersey City, N. J., has for a number of years prepared graphite mixtures which have found great favor with machinists and steamfitters of this country. Dixon's Graphite pipe joint mixture not only takes the place of red lead but is infinitely better, while Dixon's Graphited oil is used where a thinner mixture is desired and also for lubricating bearings.

The Almy Water Tube Boiler Company of Providence, R. I., has shipped to Seattle, Wash., two boilers, one of 120 and the other 200 horse-power, to be used on light-draft stern-wheel river steamers. They have under construction one 150-horse-power boiler for emergency fire pump service; one for an 80-foot yacht for Boston parties; one for a steam launch in Florida; one for running a diamond drill in the Mining Mountain region, west coast of Mexico; two for heating a hospital and two for greenhouse work in the largest greenhouse in New England.

Avoid breakdowns, repair jobs, and expensive and vexatious delays, by the application of the **Foster Steam Regulator and Governor** to all auxiliary engines and pumps on your ship.

With this device, properly applied, racing, or undue speed, which is the greatest source of trouble, is impossible. Money refunded and expenses paid in every case of failure to operate as claimed.

More than 90 per cent. of the steamships constructed in the United States within the past two years, including all the U. S. Cruisers, are equipped with **Foster Regulators.**

Each auxiliary engine and pump on the Steamship Virginia, twenty in all, is provided with **Foster Regulators.**

For full particulars, including hints on steamship equipment, write **FOSTER ENGINEERING COMPANY,**
81 Fulton St., New York.

Regulators for sale and will be supplied by:

The W. Bingham Co., Cleveland, O.
The Globe Iron Works Company, Cleveland, O.
C. H. McCutcheon, Buffalo, N. Y.
Detroit Dry Dock Co., Detroit, Mich.
Riverside Iron Works, Detroit, Mich.
Detroit Sheet Metal & Brass Works, Detroit, Mich.
Chicago Ship Building Company, Chicago, Ill.
American Steel Barge Co., West Superior, Wis.

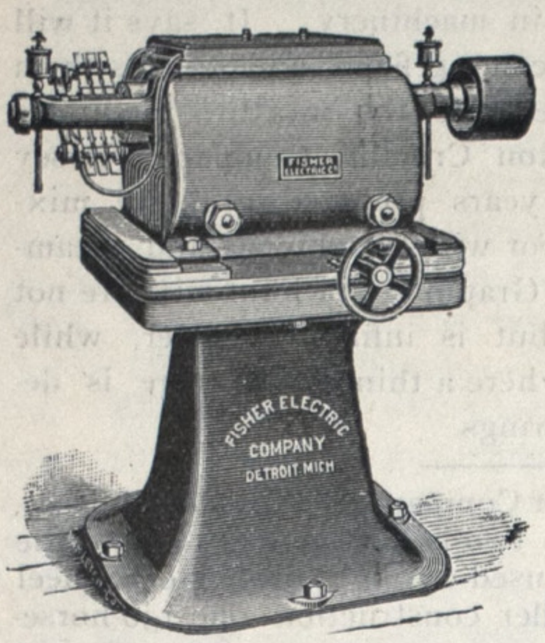
FOR SALE—Rolling Valve 14x14 Vertical Engine, built by the
POUND MANUFACTURING CO.
Been used in tug. Address G. J. HAMBLETON,
17 South Cedar St., Buffalo, N. Y.

ADVERTISING.

IF you wish to advertise anything anywhere at any time, write to GEO. P. ROWELL & CO., No. 10 Spruce St., New York.

EVERY one in need of information on the subject of advertising will do well to obtain a copy of "Book for Advertisers." 368 pages, price one dollar. Mailed, postage paid, on receipt of price. Contains a careful compilation from the American Newspaper Directory of all the best papers and class journals; gives the circulation rating of every one, and a good deal of information about rates and other matters pertaining to the business of advertising. Address ROWELL'S ADVERTISING BUREAU, 10 Spruce St., N.Y.

SEE CAPT. PECK'S LETTER Regarding Incandescent Lighting Plant on the Steamer S. R. KIRBY.



NORTHWESTERN TRANSPORTATION CO.

DETROIT, MICH., Oct. 7, 1890.

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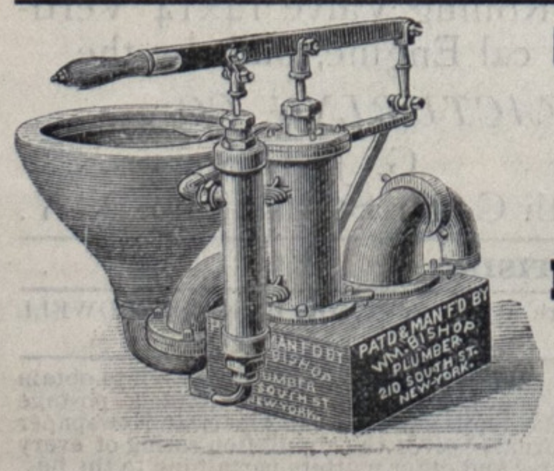

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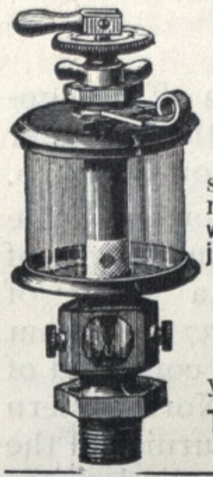

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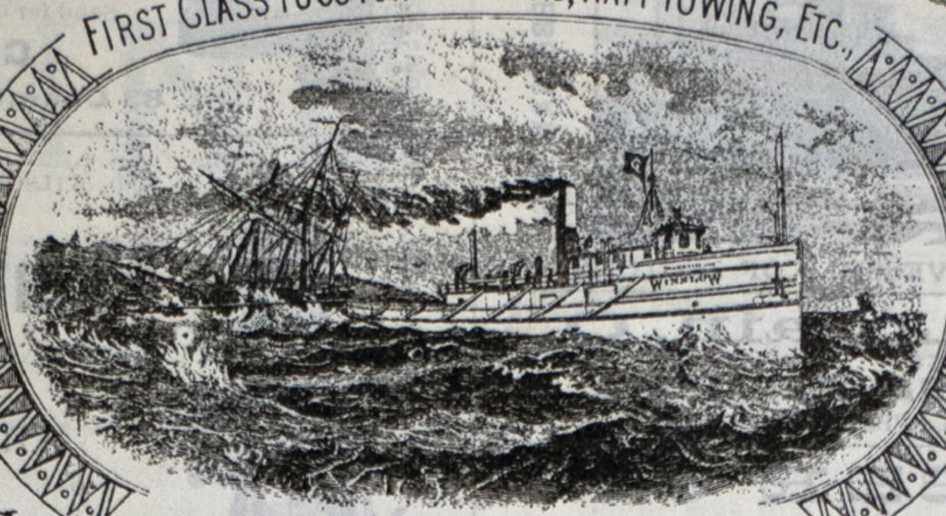

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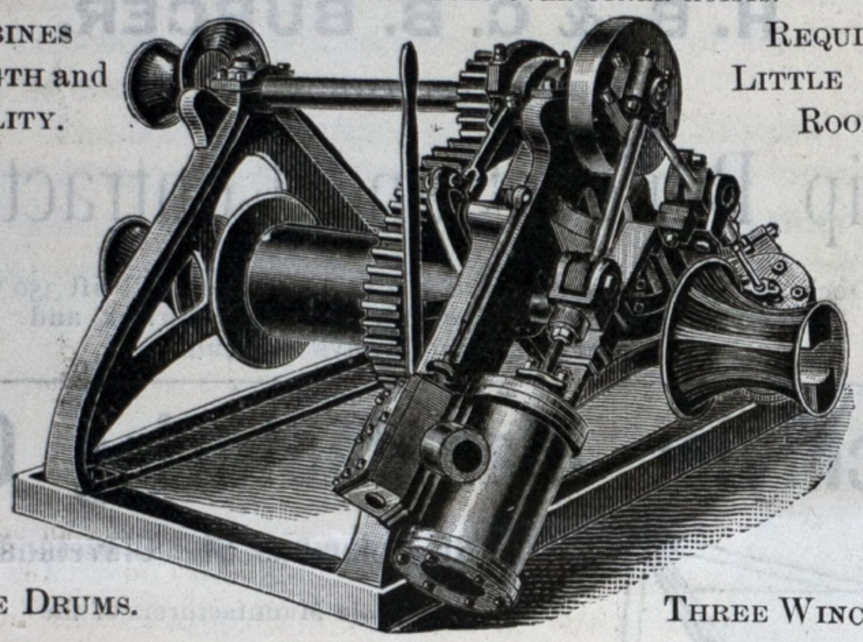

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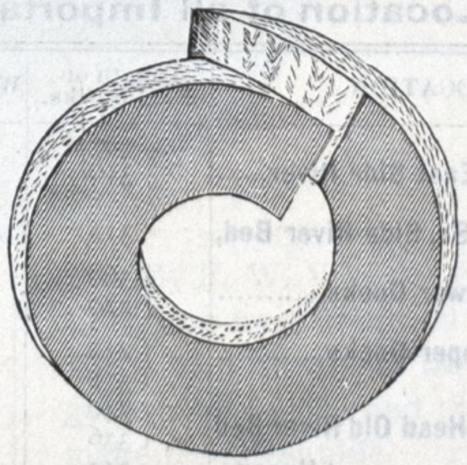

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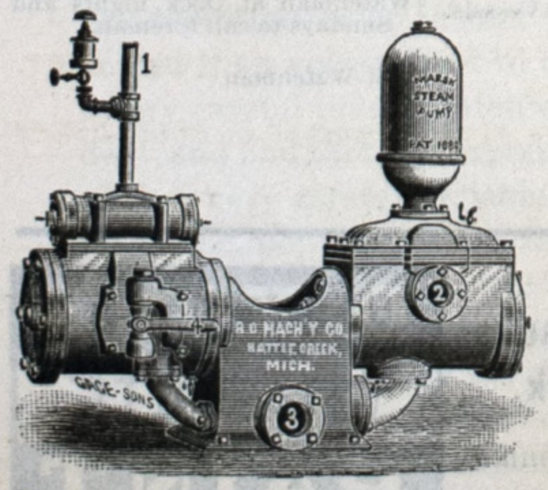

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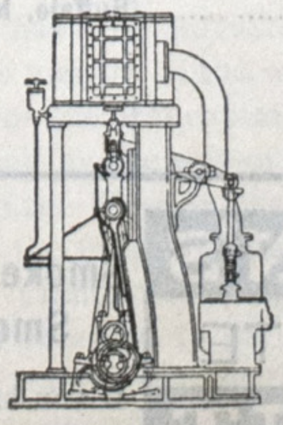

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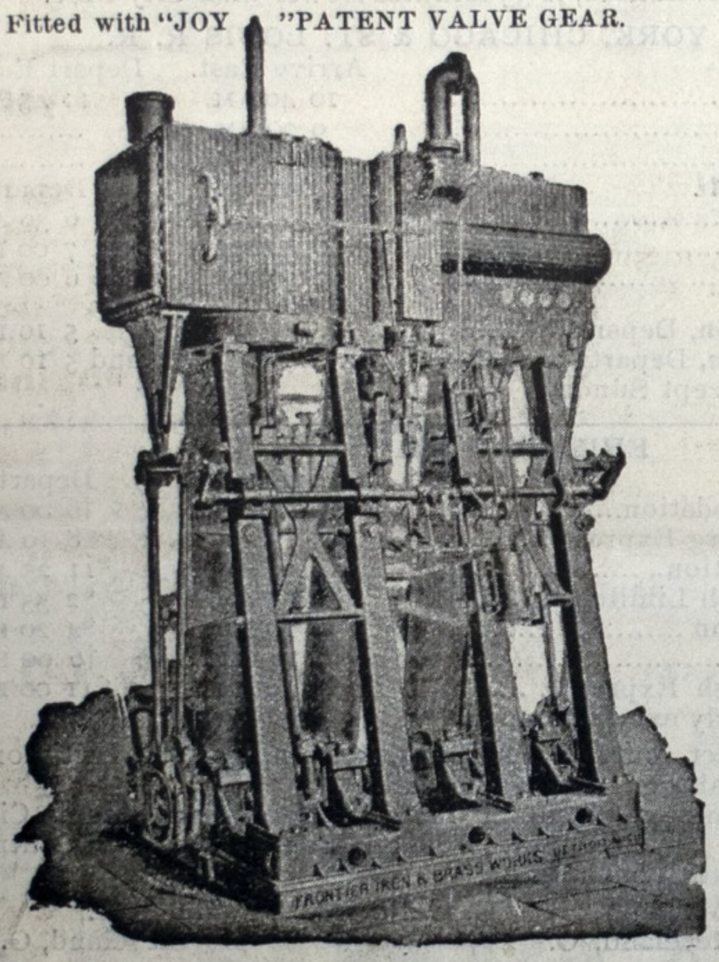

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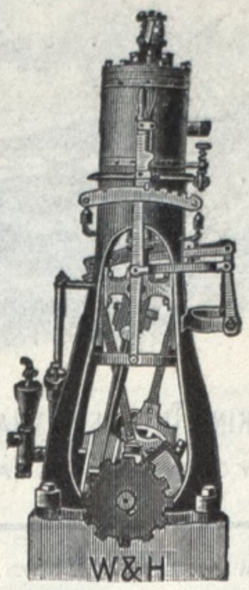

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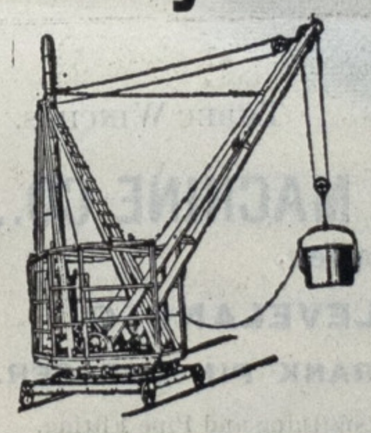

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